UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,570	07/24/2003	John J. Simpson	66638/36621	3401

21888	7590	07/14/2006

THOMPSON COBURN, LLP
ONE US BANK PLAZA
SUITE 3500
ST LOUIS, MO 63101

EXAMINER
JONES, HUGH M

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>24 July 2003</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-29* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *1/2/04*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-29 of U. S. Application 10/627,570, filed 7/24/2003, are pending.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   **Claim 11-19, 23, 29 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter since the claims are drawn to an abstract algorithm or disembodied program steps and are not tangible.**

- Claim 11: not concrete, tangible

- Claims 12-19, 23: the "system" appears to be mere software and is not concrete or tangible.

- Claim 29: the "simulator" appears to be mere software and is not concrete or tangible.

The Examiner submits that the claims as written, are merely drawn to nonstatutory descriptive material since the claimed abstract algorithm or disembodied program steps does not impart any functionality (let alone be stored on a tangible medium)). (i.e. not a computer program product or executable instructions embodied on a computer-readable medium). Analysis of the claim indicates that the claims are drawn to an abstract algorithm or disembodied computer program steps and are not concrete and tangible. The claims are merely drawn to rearranging and forming subsets of

numbers.

4.   *MPEP 2106 recites the following supporting rational for this reasoning:*

"Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."

5.   *In this case, applicants have merely claimed an abstract algorithm or*

disembodied program steps that are not embodied on a computer-readable medium

and specifically employed as a computer component to be executed on a processor and

perform the claimed limitations. Thus, Applicants have attempted to claim nonfunctional

descriptive material.

6.   An invention which is eligible for patenting under 35 U.S.C. 101 is in the useful

arts when it is a machine, manufacture, process or composition of matter, which

produces a concrete, tangible, and useful result. *The fundamental test for patent*

*eligibility is thus to determine whether the claimed invention produces a **"useful,***

concrete and tangible result." The test for practical application as applied by the

examiner involves the determination of the following factors:

(1) Useful - The Supreme Court in *Diamond v. Diehr* requires that the examiner

look at the claimed invention as a whole and compare any asserted utility with the

claimed invention to determine whether the asserted utility is accomplished. Applying

utility case law the examiner will note that:

> (a) the utility need not be expressly recited in the claims, rather it may be
> inferred.

> (b) if the utility is not asserted in the written description, then it must be
> well established.

7.   Furthermore, although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988

F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

> (2) Tangible - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed.

Cir. 1994), the examiner will determine whether there is simply a mathematical

construct claimed, such as a disembodied data structure and method of making it. If so,

the claim involves no more than a manipulation of an abstract idea and therefore, is

nonstatutory under 35 U.S.C. 101. In *Warmerdam* the abstract idea of a data structure

became capable of producing a useful result when it was fixed in a tangible medium

which enabled its functionality to be realized.

> (3) Concrete - Another consideration is whether the invention produces a

concrete result. Usually, this question arises when a result cannot be assured. An

appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of

enablement rejection, because the invention cannot operate as intended without undue

experimentation.

8.   A claim that requires one or more acts to be performed defines a process.

However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan (discussed in i) below), or (B) be limited to a practical application within the technological arts (discussed in ii) below). See Diamond v. Diehr, 450 U.S. at 183-84, 209 USPQ at 6 (quoting Cochrane v. Deener, 94 U.S. 780, 787-88 (1877)) ("A [statutory] process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.... The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."). See also Alappat, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting Diamond v. Diehr, 450 U.S. at 192, 209 USPQ at 10). See also id. at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical applications") (citing O 'Reilly v. Morse, 56 U.S. (15 How.) at 114-19). If a physical transformation occurs outside the computer, a disclosure that permits a skilled artisan to practice the claimed invention, i.e., to put it to a practical use, is sufficient. On the other hand, it is necessary for the claimed invention taken as a whole to produce a practical application if there is only a transformation of signals or data inside a computer or if a process merely manipulates concepts or converts one set of numbers into another.

9.   The claims merely recite an abstract algorithm or disembodied program steps.

The claims are not concrete and tangible.

10. Claims 1-10, 20-22, 24-28 are statutory because the claims recite and/or rely upon *tangible* apparatus.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Paragraphs 31-36 of the specification recite:

> "A summary of software development requirements that characterize a preferred implementation of the API plug-in module are as follows:
>
> [0032] The software development process *should provide* functionality through a user interface that is conveniently presented with a 3D visual simulation application;
>
> [0033] The software development process *should provide* creation of one or more unique HLA objects with a state (e.g., "on" or "off", etc.) that is controlled by the user interface within the 3D visual simulation. The state of these objects should be published to the

functional simulation application, and should be identifiable by the same unique name in each simulation;

[0034] The software development process *should provide* the functionality of setting the states of all published objects upon events that are triggered within the 3D visual simulation;

[0035] The software development process *should provide* creation of one or more unique HLA objects with states that are controlled by the functional simulation. The state of these objects are subscribed to and from the functional simulation application, and must be identifiable by the same unique name in each simulation; and

[0036] The software development process *should provide* for the virtual environment simulation application to catch the state changes of subscribed HLA objects, and thus trigger or influence changes of behavior within the graphically-depicted 3D virtual environment"

13.   This demonstrates that the invention has not been conceived to the extent indicated by said paragraphs.

14.   Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification discloses generalities and appear to list the possible capabilities of the software, but provide no substantive details relating to the claimed invention.

Claim Interpretation

15.   It is noted that claims 20-29 recite an intended use. The recitations following words such as *configured to* are provided no patentable weight. It is the configured software, that when executed by a computer causes a computer to carry out certain steps.

Claim Rejections - 35 USC § 102

16.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17.   Claims 1-29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shockley et al.

18.   Shockly et al. disclose:

    simulating the behavior of a user-interactive environment, the method
comprising:

    running a virtual environment (VE) simulation application that (1)
graphically depicts a VE, (2) receives input from a user that corresponds to
a user interaction with the VE, and (3) provides graphical output to the user
that corresponds to a condition of the VE (entire paper; note fig. 1, 2, 5
and corresponding text);

    running a functional simulation application that determines the
condition for the VE at least in part based upon the user input (fig. 1-2, 3,
5 and corresponding text; section 2);

communicating the user input received by the VE simulation application
to the functional simulation application via a high level architecture (HLA)
protocol (entire paper; note fig. 1, 2, 5 and corresponding text; section 2);
and

communicating the condition determined by the functional simulation
application to the VE simulation application via the HLA protocol (entire
paper; note fig. 1, 2, 5 and corresponding text; section 2).

wherein the VE is a three-dimensional VE, and further comprising
managing the two communicating steps with a runtime infrastructure (RTI)
interface (sections 2-3, 4; note fig. 1, 2, 5 and corresponding text).

wherein the user input communicating step comprises publishing via an
API module at least one HLA object to the functional simulation application,
wherein the published HLA object is at least in part defined by the received
user input (section 1-2; note fig. 1, 2, 5 and corresponding text).

wherein the user input communicating step comprises subscribing to the
HLA object published by the API module, and wherein the functional simulation
application running step comprises processing the subscribed HLA object
through conditional logic to determine the condition for the VE (section 1-2;
note fig. 1, 2, 5 and corresponding text).

wherein the condition communicating step comprises: publishing, by the
functional simulation application, an HLA object that corresponds to the
determined VE condition; and subscribing, by the API module, to the HLA
object published by the functional simulation application (section 1-2; note
fig. 1, 2, 5 and corresponding text).

wherein the VE simulation application running step comprises
determining the graphical output for the VE based on the subscribed HLA
object published by the functional simulation application (fig. 1, 5).

wherein the VE is a three-dimensional VE, and wherein the functional

simulation application and the VE simulation application are remote from each

other and interconnected via a computer network (fig. 1).

wherein the VE is a three-dimensional VE, and further comprising

running a plurality of the functional simulation applications (fig. 1,

sections (2.1-2.2).

19.   Claims 11-29 are rejected similarly.

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. The art is not applied because it is cumulative to the applied art.

- Torguet et al.; An HLA distributed virtual reality application on a Linux cluster;

  pp. 1-2; ccgrid2003 (conference proceedings); 5/2003.

- Page; The rise of web-based simulation: implications for the high level

  architecture; pp. 1663-1668; Proc. Winter Sim. Conf.; 1998.

- Liles et al.; Dynamic discovery of simulation entities using bamboo and hla;

  pp. 1-5; SIW1998 (conference proceedings); 1998.

- Lu et al.; Supporting large scale distributed simulation using hla; pp. 268-294 ;

  ACM trans. Modeling and Computer Sim (TOMACS) ; 2000.

21.   **Any inquiry concerning this communication or earlier communications**

from the examiner should be:

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.
Any inquiry of a general nature or relating to the status of this application should
be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or (703) 308-1396 (for informal or draft communications, please label
PROPOSED or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

July 8, 2006